

Solar in the City - 2009 Update



Bruce Plenk, City of Tucson Solar
Energy Coordinator
Solar 101-Phoenix, August 11, 2009

The Zoo School at Reid Park-LEED Platinum-14 kW PV, solar hot water & rainwater harvesting systems



Pennington Street Garage Shaded Solar Parking - 64 kW



Adaptive Recreation Center - Solar pool heating



- The water from pools circulates through a rooftop solar heating system of 72 solar panels

8:42 AM

Solar lights at dog park



Thornycastle Reservoir Solar-73 kW Using unused reservoir deck for solar



More solar this year - CREBs

- \$7.6 million financing through interest-free Clean Renewable Energy Bonds (CREBs).
- Solar photovoltaic (PV) installations on 7 City sites.
- City owned and maintained with 10 year service contract.
- Approximately 1 MW capacity – 2000 pounds of CO2/year reduced.
- Construction complete on 5 sites, others underway.
- Opportunity to demonstrate new-to-Tucson solar technology including ballasted systems, trackers, and Solyndra panels

CREBs Project Sites



El Pueblo Recreation Center- 97 kW ballasted (and pigeon protected)



Solyndra Solar Panels at Parks Store-47.25 kW



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Solyndra panel close-up- a new kind of solar panel



Tracker System at Public Safety Training Academy-473 kW

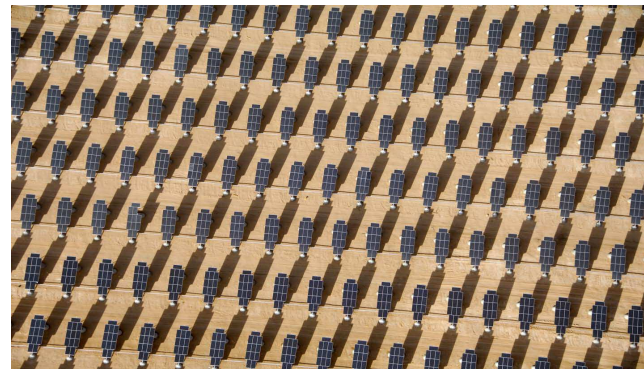


Tracker system at Hayden Udall CAP Plant-229 kW



Large Scale Solar in Avra Valley/PPA's

- 1-5 MW PV project scheduled for completion late 2009. Similar to Nellis AFB project shown below right
- Power Purchase Agreement (PPA): no capital required, contractor owned & maintained over life of contract, 20 years. City agrees to purchase power at set rates for 20 years; developer takes tax credits
- AZ Corporation Commission now considering legal issues regarding PPA's in AZ.
- Possible site for 20-100 MW concentrating solar power plant (CSP), example shown below left



Solar America City: Street Signs Recognizing Tucson Solar Installations

- Civano Community
- Conservation Learning Center
- El Rio Education Center
- Pennington Street Garage
- Sonora Cohousing
- Tucson International Airport
- TUSD - Doolen Middle School & Project MORE
- U of A - Farm & Visitor Center
- Ward 4 Office



Other Community Solar Initiatives

- TEP's REST program provides rebates for photovoltaic, solar hot water and day-lighting projects.
- Rep. Gabrielle Giffords' continues to work on federal solar initiatives including stimulus package money for solar
- U of A AzRISE/TEP solar test field, Solar Decathlon house, solar race car.
- University of Arizona, Pima County and Davis-Monthan AFB using PPA's for large scale solar installations.
- Pima Community College offering solar installer training classes.
- TREO focusing on solar economic development as one of four major areas.

Solar Incentives: Utility and Government

- TEP: PV: \$3000/kW(residential) or PBI auction (commercial); solar hot water (gas or electric backup-\$750-1750 depending on electricity saved)
- Federal incentives for renewables: 30% tax credit (or grant) + accelerated depreciation (MACRS)
- State tax credit: 25% to \$1000; 10% business deduction
- City of Tucson: \$1000 permit fee waiver if solar included
- Stimulus Bill Funds; DOE Loan Guarantee Program, EECBG, etc
- No sales tax on solar; no increase in assessment for taxes based on adding solar
- Best resource: www.dsireusa.org/ ; TEP information at: <http://www.tucsonelectric.com/Green/>

Commercial solar in Tucson

- Tucson businesses are installing solar:

- Canyon Ranch
- Latitudes factory
- Brooklyn Pizza



- Haley & Aldrich solar carport:



- Neighborhoods with solar:

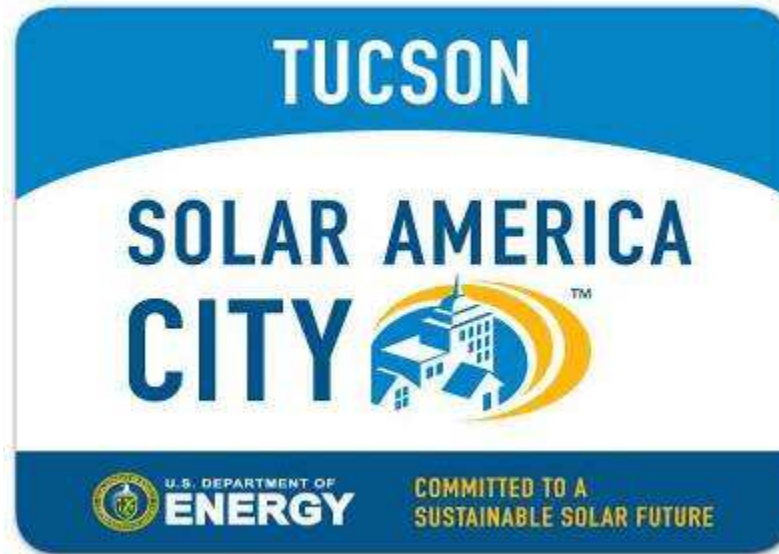
- Sonora Cohousing, Milagro Cohousing, Armory Park del Sol, Civano, Stone Curves Cohousing



What's next?

- More CREBs projects?
- Fat Spaniel monitoring on all systems-example:
<http://www.tucsonaz.gov/hottopics/citysolar.html>
- Help clarify legality of PPA's in AZ
- More solar hot water on city buildings and pools
- Simplify regulations for solar permitting
- New solar maps for neighbor-neighbor interaction:
greenpueblomap.org
- More solar economic development
- Community solar in cooperation with Tucson Electric Power?

Questions??



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